FACTSHEET

AGRICULTURAL ENGINEERING

SOILS

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Ontario Ministry of Agriculture, Food and Rural Affairs

Energy Opportunities

CONSERVING ENERGY IN IRRIGATION

R. Shortt

Irrigating effectively helps conserve water and can also help reduce energy costs. Here are four ways to achieve effective irrigation:

- Know the general water requirements of the crop.
- Use an irrigation schedule to determine how much irrigation to apply and how often, based on crop, soil texture and climate.
- Modify the irrigation schedule, based on current weather (rain and temperature).
- Check the effectiveness of the irrigation schedule and methods by monitoring soil moisture.

Effective irrigation means applying the right amount of water only when the plant needs it. This avoids unnecessary water pumping, which uses energy and costs money.

Example:
Over-applying 2.5 cm (1 in.) of water over 0.4 ha (1 acre) costs about $10 in energy to operate an irrigation traveller with limited lift and a short distance to the field. Multiply that by the number of irrigated hectares and the costs begin to add up. On a 20-ha (50-acre) farm, 5 cm (2 in.) of water are applied when the plants require only 3.8 cm (1.5 in.). Irrigation is applied six times, when four times would have been enough. This means approximately 15 cm (6 in.) of water were applied unnecessarily. The over-application of those 15 cm (6 in.) over 20 ha (50 acres) costs $3,000.

OTHER ENERGY CONSERVATION TIPS

- Irrigate on calm days instead of windy days, as the uniformity of overhead water application (sprinklers/guns) is very poor under windy conditions.
- When possible, irrigate on cooler, cloudy days when evaporation will be lower.
- Irrigate at night (if possible) when less moisture will be lost through evaporation.

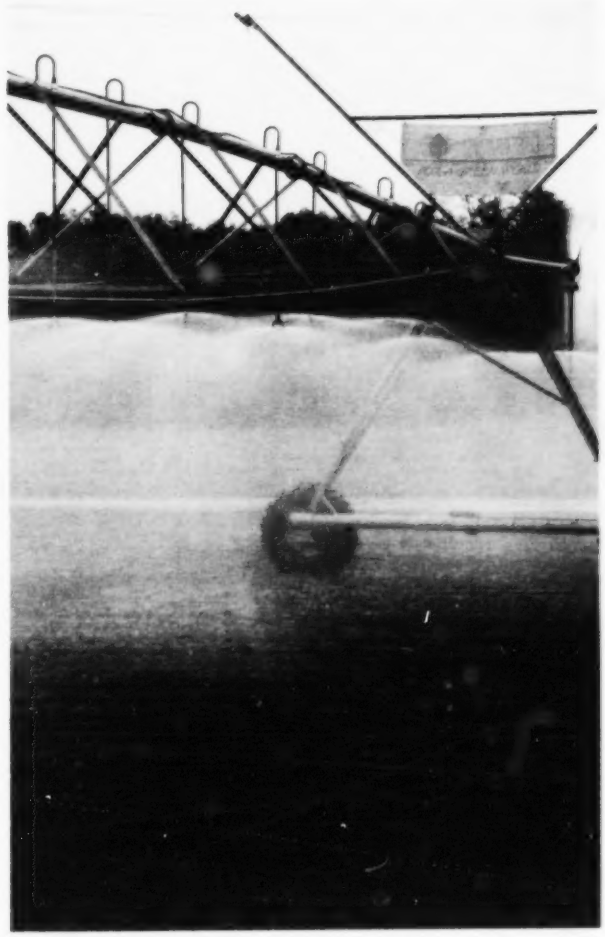

FIGURE 1: Low-pressure lateral-move irrigation system

- Apply only the amount of water required for crop growth (excess watering wastes energy and money).
- Check system regularly for leaks, and repair immediately.

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FOR MORE INFORMATION

OMAFRA Factsheet *How to Prepare for Irrigation During Water Shortages*, Order No. 99-023.

Best Management Practices book: *Irrigation Management*, BMP 08, revised 2004.

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Conservation Bureau
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OFA Ontario Federation of Agriculture

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